Speed, Distance & Time: Hard Practice Paper 8 Answers

Q#	Answer	Explanation
1	E	While the visitor is at the house the distance from home stays at 20 km, so the line is flat. That happens from 1 hour to 3 hours, a stay of 3 − 1 = 2 hours.
2	B	In 40 seconds the train travels 25 × 40 = 1000 metres, and that covers the tunnel plus the train's own length. So the tunnel is 1,000 − 200 = 800 metres long.
3	E	The three legs take 30 ÷ 30 = 1, then 60 ÷ 60 = 1 and 90 ÷ 45 = 2 hours, so 4 hours for 30 + 60 + 90 = 180 kilometres. The average speed is 180 ÷ 4 = 45 km/h.
4	C	Divide each distance by its time: 45 ÷ 3 = 15, then 42 ÷ 2 = 21, 60 ÷ 4 = 15 and 36 ÷ 2.5 = 14.4 kilometres each hour. The lowest is Dee at 14.4 km/h.
5	D	In 20 minutes, a third of an hour, the runner covers 2 km. The cyclist then closes that gap at 18 − 6 = 12 km/h, taking 2 ÷ 12 of an hour, which is 10 minutes. In 10 minutes the cyclist rides 3 kilometres.
6	B	The car spends longer on the slow half than on the fast half, so the slower speed counts for more of the time and pulls the average below the halfway point. Whatever the distance, the average works out at 48 km/h.
7	E	Every mile is 1.6 km, so seventy miles is 70 × 1.6 = 112 kilometres. Travelling that in an hour is 112 km/h.
8	A	The whole race takes 5 × 42 = 210 minutes. Since 210 ÷ 60 = 3.5, that is 3 hours 30 minutes.
9	B	Over 3 hours at 80 km/h she covered 80 × 3 = 240 kilometres. The first two hours accounted for 90 × 2 = 180 of them, leaving 240 − 180 = 60 kilometres in the last hour.

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10	C	The fastest hour is the one with the steepest line. The distances covered are 30 km, then 60 km, then 20 km, then none, so the second hour is the fastest at 60 km/h.
11	D	By 09:00 the ferry is 24 km ahead. The speedboat closes that gap at 40 − 24 = 16 km/h, taking 24 ÷ 16 = 1.5 hours. In that time the speedboat travels 40 × 1.5 = 60 kilometres.
12	A	The whole journey takes 300 ÷ 60 = 5 hours. The first part used 2.5 hours, leaving 2.5 hours for the remaining 300 − 100 = 200 kilometres, which is 200 ÷ 2.5 = 80 km/h.
13	C	The thinking distance becomes 14 × 2 = 28 metres and the braking distance 40 × 4 = 160 metres. Together the car needs 28 + 160 = 188 metres to stop.
14	A	From 13:20 to 16:32 is 3 hours and 12 minutes, which is 192 minutes. The first leg takes 90 ÷ 60 = 1.5 hours, that is 90 minutes, and the signal adds 12, leaving 192 − 102 = 90 minutes, or 1.5 hours, for 120 km. That needs 120 ÷ 1.5 = 80 km/h.
15	D	Going opposite ways, the gap grows by 5 + 19 = 24 kilometres each hour. To reach 36 km takes 36 ÷ 24 = 1.5 hours, which is 1 hour 30 minutes.

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